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ABSTRACT

Prepared by a consultant for the American Telephone and Telegraph Company (ATT), this memorandum contends that recent decisions by the Federal Communications Commission (FCC) have violated the provisions of the Communications Act of 1934 that assured the maintenance and improvement of the integrated switch telephone network managed by ATT and its affiliates in partnership with the independent telephone companies. Following a brief introduction to the subject, the first major section of the memorandum discusses the development of the telephone industry before 1968. Specific areas covered in this section include the telephone industry's "end-to-end" responsibility for service, the goal of universal service and its implications for rates, and the relation of Western Electric to the telephone network. The second section deals with the FCC's departure from the statutory rule of network unity and provides information on the first cases leading to this situation, restrictions on the competitive response of the general-service telephone companies, customer-owned equipment, and the economic consequences of the recent FCC decisions. The final section presents a summary of the key issues in the continuing debate concerning communications policy. (FL)

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The Case for Congressional Action to Safeguard the Telephone Network as a Universal and Optimized System

by

Eugene V. Rostow

Memorandum for the American Telephone and Telegraph Company

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This paper is based on the memorandum prepared by Professor Eugene V. Rostow for the American Telephone and Telegraph Company for use in the November 1975 Hearings before the Subcommittee on Communications of the U.S. House of Representatives Committee on Interstate and Foreign Commerce.

SUMMARY

In a series of recent decisions, the Federal Communications Commission has been led, step by step, into a pattern of rules which violate one of the fundamental policies of the Communications Act of 1934 and its predecessor statutes, — that of assuring the maintenance and improvement of the integrated switched telephone network, managed as a unified system by the American Telephone and Telegraph Company and its affiliates, in partnership with the Independent Telephone Companies.

This development has taken place during the last seven years in ways which were unforeseen, and indeed rejected by the Commission when the process began.

Starting in 1968, the Commission launched an experiment in its regulatory policies, involving (1) liberalized rules for the connection of consumer-owned equipment to the telephone network; and (2) the licensing of what are called, in the vocabulary of the FCC, "specialized common carriers," "miscellaneous common carriers," and "domestic satellite common carriers," offering private line services primarily to larger business firms on selected high-volume, lower-cost routes. Experience has shown that the services offered by these carriers duplicate those already provided by the regulated general-service telephone companies. In order to clarify the policy problems raised by this development, the new telecommunications companies should therefore be called "specialized common carrier telephone companies," as distinguished from the general-service telephone companies offering a wide variety of telecommunications services to the public at large.

The dynamic forces released by these trends in FCC decision-making have proved to be extremely powerful. As a result, the Commission has lost control of its experiment. It has been drawn into positions contrary to its early policy statements on the issues.

The Commission has undertaken the regulatory protection of the specialized telephone companies against the fair and normal competitive responses of the general-service telephone companies, thus denying to the public the advantages of the economies inherent in the plant and the operating methods of the telecommunications network viewed as an integrated system.

Similarly, with regard to the connection of customer-owned terminal equipment to the network, the Commission has taken a first long step, in its decision of October 31, 1975, in Docket 19528, towards regulations which, in the opinion of many experts, could jeopardize the technical integrity and efficiency of the network, and adversely affect its economic viability as well.

As they have evolved, these twin lines of FCC decisions are now inconsistent with the FCC's initial expectations and rulings, and with the standards of the Communications Act. The initial rulings of the FCC would have confined the licensing of specialized and domestic satellite common carrier telephone companies to novel and innovative services not linked to the network, and would have allowed the general-service telephone companies to meet competition fully and freely, in the few areas where it was then expected, in ways which assured the public the advantages inherent in the plant and operations of the Bell System and the Independent Telephone Companies. Similarly, in its first rulings on interconnection, the Commission showed scrupulous concern for preserving the technical integrity and economic viability of the network as decisive factors in the public interest.

These qualifications have now been largely swept away. If current trends are allowed to continue, they will be entirely swept away. The FCC's pattern of decisions has encouraged the emergence of business pressures which threaten the technical and economic viability of the network as a system capable of optimized operation and development, and capable also of providing universal service at rates which are reasonable for each class of subscribers. In reliance on these deviant FCC decisions, a veritable Gold Rush is in the making. A number of companies have entered or are seriously planning to enter the most lucrative parts of the telephone business, naturally attracted by the opportunities the FCC has created to participate in the provision of telecommunications service. Unless the process is promptly checked, two major consequences can be expected. First, the real costs of telephone service for the American economy will increase, through a wasteful duplication of facilities and slowing up or preventing the introduction of lower-cost high-capacity technological innovations. Second, telephone rates for the many millions of household subscribers will be raised sharply, and increases in other rates will also occur. Such a development would be in conflict with the overriding national policy of providing a universal telephone service at reasonable rates through a unified telephone network.

The FCC seems firmly committed to its present course. For reasons inherent in the normal relationship between courts and administrative agencies, the courts cannot be expected to correct these erroneous FCC decisions, certainly not in time to prevent irreparable and irreversible injury to the network and its users, and large increases in telephone rates for household users. In view of the familiar judicial policy of deference to the expertise of administrative agencies, it is possible, though by no means certain, that the courts will ultimately uphold most of what the FCC has done as a permissible exercise by the agency of its discretion in implementing broad and general Congressional policies in a highly technical field.

Congress should therefore act promptly to reaffirm the policy of network unity which has dominated its decisions in this field at least since 1921, and apply that policy to a number of the critical problems which have been the focal point of controversy since 1968. An amendment to the Communications Act should provide that:

(1) the unified network should provide the services within its capabilities;

(2) specialized telecommunications companies should be authorized only if the FCC is convinced they are offering novel and innovative services not readily available through the network, under conditions which do not threaten the technical or economic viability of the network;

(3) the right of the general-service telephone companies to meet such competition fully and fairly should be clarified, and

(4) the jurisdiction of the state regulatory authorities should be reiterated.

(5) Furthermore, the prevailing rate policy — based on nation-wide averaging practices and state-federal separations procedures — should be restated as a public interest standard; that policy is the predicate for the relatively low rates of household subscribers, even in remote rural areas.

I. INTRODUCTION

One of the fundamental policies of the Communications Act of 1934 and its predecessor statutes was to assure the maintenance and development of the integrated switched telephone network, managed by the Bell System in cooperation with the Independent Telephone Companies, now some 1600 in number. The conception of the unitary network, whose facilities are available in common to all users, is inherent in the mandate of Section 1 of the Communications Act, which is "to make available, so far as possible, to all the people of the United States a rapid, efficient, Nation-wide and world-wide wire and radio communication service with adequate facilities at reasonable charges . . ."

The unitary switched network is the means chosen by Congress for achieving the goals of the Act. It is the backbone of our telecommunications system. It was as familiar in 1911, 1921 and in 1934, when Congress passed communications statutes, as it is today. It was the reality to which both the 1934 statute and its predecessors were addressed. It was their overriding policy goal that telephone service be provided through a unitary network linking every public message telephone to every other such instrument in the land, and in the world. Both economic and technological developments in recent years make the reasons which led Congress to elect the policy of network unity in 1911, 1921, and 1934 even more compelling today. The basic mission of the network, resting on complex and intricately reticulated systems of transmission, switching, and management, has been and is to provide the many kinds of communications services of which it is capable — not only public switched network services, but special private line, voice, data, and program services of many types as well. Both public message and private line services use and depend upon the transmission or switching facilities of the network, or both, on its managerial procedures, and on its resources for research, development, planning, manufacture, and maintenance. The development of switching technology is rapidly eroding any possible distinction between private line and switched services; as a matter of economic reality, they are direct substitutes for each other, and are parts of the same market.

The management of the network as a unified system is the key to optimization — that is, to the development and adaption of technology and management methods for network use at minimal costs to the system as a whole. Unified management of the network as a system has made it possible to provide telephone service directly to more than 94 percent of American households, at rates which by any standard are among the lowest in the world.

Congress reached the conclusion that the telephone network should be organized, improved, maintained, and managed as a unified entity and regulated as a public utility, as early as 1911.

That decision was confirmed, after a full review of experience under the earlier legislation, and a full consideration of alternatives, in the Communications Act of 1934. It is a significant fact that Congress considered the Communications Act of 1934 at the same time it was studying what ultimately became the Public Utility Holding Company Act of 1935. It expressly rejected for the telecommunications industry the solution of divestiture and decentralization it adopted for the electric and gas utilities industry, and reserved for itself, through Section 215 of the Communications Act, the issue of whether changes in the structure of the telecommunications industry should be made in the future. The essential Congressional judgment embodied in the 1934 Act is that the public interest will be best served by a unified telephone network, as the most efficient and progressive way to meet the defense needs of the nation, and to provide basic interstate and international telephone services of high quality "to all the people of the United States . . . with adequate facilities at reasonable charges."

Congress has consistently reaffirmed that decision as the first principle of this branch of our communications law and policy. I know of no challenge to the principle of the unified network as a general concept, nor to the proposition that it is the major premise of Title II of the Communications Act of 1934. It has been taken as an axiom in the decisions and opinions of the FCC and the courts, and in the popular and academic literature on the subject, that the integrated network is a "natural monopoly," to be regulated as a public utility.

Congress reached this view for the same reasons which led the state legislatures to the same conclusion some years before: the inconvenience and economic waste which result when telephone service is provided by competing communications systems rather than by a unified system connecting each subscriber to all other subscribers through a series of telephone exchanges. The necessity and convenience of connecting telephones to each other for two-way communication is the technological imperative requiring unity throughout the telephone system. The heart of the matter was summed up a generation ago by Dr. Walter M.W. Splawn, an outstanding economist and lawyer in his day, Professor of Economics, member of the Interstate Commerce Commission, and author of one of the most influential basic studies on the organization of the telecommunications industry. Contrasting the electric power industry with the telephone system, Dr. Splawn said that unified management was essential to the telephone industry because to be most useful the telephone "must be connected through switchboards with every other switchboard in the entire country."[1]

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1. Hearings on S. 1725, Senate Committee on Interstate Commerce, 74th Congress, 1st Session 75 (1935); Hearings on H.R. 5423, House Committee on Interstate and Foreign Commerce, 74th Congress, 1st Session 180 (1935).

In 1921, recommending the legislation which became the Willis-Graham Act, the House Committee on Interstate and Foreign Commerce found that the duplication of telephone facilities "greatly increases the burdens which must be borne by the telephone users," and concluded that "the best telephone service can be rendered by one company, under proper regulation as to rates and service."[1]

The courts have recognized the fact that the public interest standard of the Communications Act presupposes, and contemplates, a highly regulated telecommunications industry, for which public policy does not, and cannot, require competition for its own sake. Competition is certainly one possible component of the public interest which the Commission may consider, the Courts have ruled, but never as an end in itself. Competition must yield to the more fundamental goals of the Act, and above all, to its overriding concern for the effectiveness of the network. As the Supreme Court said, in 1953 in FCC v. RCA Communications, Inc.,:

> *. . . The very fact that Congress has seen fit to enter into comprehensive regulation of the communications embodied in the Federal Communications Act of 1934 contradicts the notion that national policy unqualifiedly favors competition in communications . . .* [2]

The same rule controls the holding and opinion in Hawaiian Telephone Co. v. FCC in 1974. There the court said:

> *The whole theory of licensing and regulation by government agencies is based on the belief that competition cannot be trusted to do the job of regulation in that particular industry which competiton does in other sectors of the economy. Without in any way derogating the merits of the competitive free enterprise system in the economy as a whole, we cannot accept the action of the FCC here in a tightly regulated industry, supported by an opinion which does no more than automatically equate the public interest with additional competition.* [3]

As will appear later in this memorandum, the FCC accepts this rule as binding on it. It is repeatedly invoked by the Commission in explaining its policies in this area.

Over the years, factors of technological and economic change have reinforced the case for network unity. The development of the economy increased the relative importance of interstate and

1. H.R. Rep. 109, 67th Congress, 1st Session 1 (1921).
2. FCC v. RCA Communications, Inc., 346 U.S. 86, 93 (1953).
3. Hawaiian Telephone Company v. FCC, 498 (D.C. Cir., 1974) at 777.

international telecommunications. The rate of change in technology increased rapidly, especially after the Second World War, thus making research, innovation, and the flow of change in telecommunications methods more and more important as an element in network development, maintenance, and management. As the modern American economy took shape, it became more obvious than ever that there was no feasible alternative to a unified system of network management if the nation wished to achieve a telecommunications system capable of optimal performance.

Under modern conditions, the task of managing the network on which all communicators ultimately must depend has become a formidable one. The network must process a daily volume of more than 30 million intercity calls, through switching equipment which also handles about 426 million local calls and other demands on its capacity. The control of this flow of messages can be accomplished efficiently only through planning and management procedures which view the network as a single interactive system, not a loose aggregate of independent parts. If one route is crowded, calls must be transmitted through alternative routes. The network managers must be informed at all times about the volume and prospective volume of traffic on every route of the system. To obtain optimal efficiency as well as reliability of service, both investment in new capacity and the maintenance of old capacity must be planned in ways which minimize costs for the system as a whole. One piece of equipment, for example, may be cheaper than another in performing a particular function, but require larger outlays than the other in cables or other supporting facilities. In order to minimize the real cost of communications service for the economy as a whole, such decisions about system design must be made on an overall, not a piecemeal basis.

Similarly, to maintain enough capacity, but not too much, the continuous flow of capital investment required to improve and maintain the network as a viable entity must be geared to a reasonably accurate plan for growth, based on the best possible economic and demographic forecasts for every part of the nation.

Both ordinary maintenance and the task of coping rapidly with occasional breakdowns often require action as well as continuous surveillance on a system-wide basis.

These goals — planning for future growth; determining and achieving an appropriate but not excessive level of capacity; developing and introducing new and improved technologies compatible with the existing facilities of the network; and protecting and restoring the network — involve an endless flow of technical and economic decisions.

The Bell System now requires approximately $10 billion a year for capital outlays, and the Independent Telephone Companies approximately $2.5 billion. Obviously, large and unnecessary

costs will be incurred if decisions to invest in communications plant depart significantly from the norm of optimization, that is, of minimizing the real costs to the economy of providing high-quality service. Duplicate facilities and excess capacity carry a heavy price, a matter of major concern in an era of intense competiton for capital.

Above all, policies that would fragment the network, or reduce its capacity to provide telecommuncations services as cheaply as the progress of science permits, would deny the American economy the advantages of clear and obvious economies of scale, of complementarity, and of efficiency in using a vast aggregation of capital.

Because it is a unitary system, the modern American telecommunications network is a notable example of a single technological and economic unit that is able to provide something close to the full array of the telecommunications services required by the economy at real costs which should be lower than those of other possible suppliers. As a matter of engineering, technology, and management, the task of providing switched network and related telecommunications services at minimal real costs requires system-wide planning and management, capable of drawing continuously on continuously available expertise in research, engineering, manufacture, operations, and systems management. The nature of the task permits no other solution capable of optimization. Congress has recognized that fact and built Title II of the Communications Act on it as a foundation. Under the mandate of the Act, these functions are the responsibility of the Bell System, working in cooperation with the Independent Telephone Companies.

Everyone agrees that the Communications Act presupposes and requires an integrated and unified telephone network. But there is a considerable diversity of opinion as to the reach of that rule of law, that is, as to the extent of the Bell System's franchise under the Act. There have been controversies, for example, about whether it is necessary or appropriate for the Bell System to engage in extensive research, development, and manufacturing activities in order to fulfill its basic statutory responsibility for maintaining, improving, and managing the switched network, in partnership with the Independent Telephone Companies. In 1968, the President's Task Force on Communications Policy concluded that the integrated structure of the Bell System was desirable, and I testified at length to this effect before Senator Hart's Subcommittee of the Senate Judiciary Committee in 1974.[1]

1. The Industrial Reorganization Act, Hearings on S. 1167, Hearings before the Subcommittee on Antitrust and Monopoly of the Committee of the Judiciary, United States Senate, 93rd Congress, 2nd Session, Part 6, The Communications Industry (1974) pp. 4009-4061.

More recently, controversy about the scope and dynamics of the integrated network has focused on three categories of problems:

(1) whether specialized telephone companies as that term is used here[1] — that is, specialized and domestic satellite common carriers, and miscellaneous carriers — should be allowed by the FCC to provide interstate private line voice, data, and message services (now linked to the switched network) which the existing general-service telephone companies do or can provide;

(2) the extent to which the existing general-service telephone companies should be allowed to meet the competition of such specialized telephone companies, once they have been authorized by the FCC; and

(3) the technical, economic, and systems-management standards to be enforced with regard to the connection of customer-owned communications equipment to the network.

This memorandum is addressed primarily to the economic and other policy problems confronting the telecommunications industry as the result of the recent decisions of the FCC on these three issues: the proliferation of specialized interstate telephone companies; the restrictions imposed by the FCC on the competitive response of the existing general-service telephone companies to the rates of such specialized telephone companies; and the rules which should govern the interconnection to the network of customer-owned communications equipment in the interest of assuring the adequacy of technical safeguards to assure the technical quality and safety of network services, and of maintaining the economic viability of the network.

My central contention here is that the pattern of recent FCC decisions departs from the FCC's initial rulings on these issues and from the unified network standards of the Communications Act. In my judgment, these decisions go well beyond the Commission's discretion under the statute to interpret and apply the public interest criterion of the Act.

It is not excessive to describe the present posture of the telephone industry as one of incipient crisis. The developments which were initiated and then accelerated by the recent decisions of the FCC on these three subjects threaten the future of the integrated switched network as a viable entity.

The FCC's decisions on specialized and domestic satellite common carriers and related problems are bringing about the erosion of the network through the provision by such specialized telephone companies of services which the existing general-

1. See p. 1, supra.

purpose telephone companies can and do provide, and they create an umbrella of protection for the specialized telephone companies against the natural competitive response of the general-purpose telephone companies to the lower prices of their new competitors. Together, these two factors foreshadow far-reaching change not only in the scope of the network and its capacity for optimization, but in the pattern of rates — initially, of rates for private line services, and then of rates for all services, with particularly large rate increases for household subscribers. It is not possible, as experience has already demonstrated, to confine experiments in competition to hermetically sealed segments of the market for communications service. Larger business users of communications service, sensitive to price, can and do readily substitute private line for specialized switched network services, and customer-owned for carrier-owned terminal equipment.

As a catalyst designed to stimulate its recent policy of encouraging competition in the manufacture and sale of telecommunications equipment to subscribers, the FCC has taken a long step, in its decision of October 31, 1975, in Docket No. 19528, dealing with the connection of terminal equipment to the network, towards the promulgation of rules which, in the opinion of many experts, could seriously compromise the capacity of the Bell System and the Independent Telephone Companies to preserve the technical integrity and efficiency of the network; they could well have detrimental economic effects as well.

These decisions of the FCC have already had significant economic consequences, especially in the field of rates. If present trends continue without change, their consequences will be severe, and undesirable from the point of view of the public interest.

It is unlikely that prompt and adequate relief can be obtained from the courts, in view of the normal judicial attitude of deference to what may appear to be the exercise by an expert administrative agency of its discretion in implementing broad and general Congressional policies in a highly technical field.

I have therefore reached the conclusion that Congress should act urgently to govern the trends initiated by the FCC's departure from its mandate. It should do so through an amendment of the Communications Act which would reiterate and confirm its original intention to encourage and sustain the development of the national integrated switched telephone network as a unified entity, and would provide up-to-date guidelines for the FCC and the courts in carrying out that policy under present circumstances.

Unless this is done, the effect of recent FCC decisions will be to reshape the American telecommunications industry by ad-

ministrative fiat. The FCC has opened gates which Congress shut many years ago. In reliance on these deviant FCC decisions, large and powerful companies, attracted by the prospect of entry into the most profitable parts of the communications industry — the provision of communications services and equipment to big business — are mobilizing for a modern Gold Rush. The first result of such a mass entry into the telecommunications industry would be to reduce the telephone rates of large business subscribers; to increase the telephone rates of home telephone users; and to raise the level of telecommunications costs, thus ultimately forcing general increases in rates. Inevitably, such developments would slow down — and perhaps reverse — the rate of reduction in the real costs of telephone service which has been brought about by technological and managerial advances during the last thirty years.

II. THE DEVELOPMENT OF THE INDUSTRY BEFORE 1968

In reliance on the policies of the Communications Act of 1934, and its predecessor statutes, as they had been interpreted and applied before 1968, AT&T and other telephone companies have developed in their present form, and the public has invested billions of dollars in their securities. The telephone system which evolved in that environment has certain well defined characteristics.

The telephone operating companies are organized as public utilities holding franchises under state law, and their intrastate rates and other intrastate activities are regulated by state commissions. The FCC regulates their activities in interstate and foreign commerce. The common carriers are required by the Communications Act to serve their users without unjust or unreasonable discrimination or undue or unreasonable preference or advantage to any particular person, class of persons, or locality; they must charge rates which are uniform, just and reasonable, in each appropriate rate category, subject to review by the Commission; and they are otherwise supervised by the FCC in the familiar pattern of public utility regulation. Under the Act, the construction of a new line by a common carrier, or the extension of an existing line, requires advance approval by the Commission through a certificate "that the present or future public convenience and necessity require or will require" such additional interstate or foreign facilities. Mergers and acquisitions by regulated companies may be approved in advance by the FCC as in the public interest.

A. End-to-End Responsibility for Service

One of the major corollaries of the principle of network unity has been to hold the telephone companies responsible for every aspect of the service, end-to-end. The Bell System provides maintenance and repair service for all operating company equipment, including terminal equipment, produced or purchased by Western Electric, and provided by that company to Bell System operating companies. It does not provide maintenance service for equipment provided directly by its customers. The public and the regulatory agencies have been accustomed to look to the Bell System and the other general-service telephone companies when telephone service fails for any reason. If that expectation is to be fulfilled, policy requires that customer-provided terminals and systems should be attached to the network only under regulations which fully protect its technical viability. Without such a rule, at a minimum, it would be impossible for long to preserve the policy of requiring the Bell System, in cooperation with the Independent Telephone Companies, to take responsibility for the integrity of the network. A

departure from that principle would necessarily reduce the capacity of the network managers to achieve optimal performance from the network and an optimal rate of progress in its development.

B. The Goal of Universal Service and its Implications for Rates

The statute puts great emphasis on achieving a universal or nearly universal telephone service. The application of that statutory standard has resulted in a rate pattern based on the value-of-service principle.

The value-of-service principle is the normal guide for pricing policy in regulated industries, where the industry provides discrete services which are worth more to some classes of users than to others. It is the rule posited by economic theory for any market situation of this kind, where an aggregation of capital and other resources is capable of producing products or services whose value in different markets or sub-markets is different.

Under such circumstances, the economic welfare of the nation is maximized, and the capital and other resources committed to the plant are used to best advantage, when the prices charged for different classes of service reflect the respective value of those services to the several classes of users, so long as prices equal or exceed the short-run variable or incremental costs of providing the services in each market. Prices would then reflect the relative intensity of user demand for the services in different markets, even though those prices may, quite properly, bear quite different relations to the full average cost (including fixed costs) of providing them.

To put the matter in another form, some prices for the service would yield far greater contributions than others toward meeting the overhead or common costs of supplying them. This rule involves no "subsidization" of one service by another; a single uniform rate based on full average costs would result in less of the service being sold, in the nature of the differences among the demand curves for different categories of users. Pricing with reference to the value of the service to different groups of users simply represents the application in pricing of ordinary rules of economic efficiency. It pays society just as it pays the individual supplier to use existing plant so long as the revenues produced from the sale of an additional unit of supply cover the additional costs of providing it.

The "value-of-service" principle in pricing is familiar throughout the economy. It is especially obvious where the same or similar products or services, produced under conditions of joint costs, are sold in different markets. It is commonplace, for example, that railroad freight rates for different commodities, while uniform for each commodity, differ in relation to the value

of the product carried and the intensity of competition offered by other means of transport. Petroleum products, produced by the same process of refining, sell at quite different prices in the market, since the demand of consumers for the different petroleum products is pitched to different levels of price. The prices for milk in different markets and for different cuts of meat are other well-known examples of the same principle. Yet it never occurs to anyone to suggest that the price of steak "subsidizes" the price of hamburg.

In the telecommunications industry, the application of this economic principle has resulted historically in rates for household users which are relatively low, in relation to total costs, as compared to the rates for intercity and interstate services and for the specialized communications services of larger business firms. The demand of larger business units for telecommunications services is naturally more intense than that for most households and small business firms. Telecommunications services are simply worth more to large firms than to householders or small firms. The rate system reflects that fact — the fact, that is, that the demand curve of large businesses for communications services is addressed to higher levels of rates than the demand curves of most other users of the service. The fact that ratemaking is addressed to conditions of demand has helped to bring about the great expansion of telephone services for households and small business users during the last thirty-five years — an increase from 37 percent to more than 90 percent of all households between 1940 and 1974. This expansion took place because rates were low enough, in relation to the demand curve for such services, to elicit the increase in demand which has taken place.

The historic rate pattern for telephone rates represents sound economic policy, and sound social policy as well. The achievement of nearly universal telephone service through the network is an economic advantage for everyone who uses it, and for the national economy. It has permitted the emergence of a balanced rate structure under which the telephone companies can earn a fair rate of return on their investment as a whole, and thus attract the capital needed for the development of the network.

This pattern is reinforced by regulatory "separations procedures," developed through the cooperation of the FCC and the state regulatory agencies. The jurisdictional separations procedures determine the way in which the common costs of providing various categories of telephone service are allocated between the intrastate and the interstate segments of the market. Their effect on the ratemaking process is thus basic. At the present time, the separations procedures allocate to the interstate sector of the business a substantial part of the common costs of facilities jointly used to provide interstate and intrastate service.

Adapting the value-of-service principle to the non-discrimination standards of the Communications Act has had another consequence, historically: the practice of nationwide averaging for different classes of rates and costs. That rule has meant that all users of a particular class of service would pay the same rate for the same kind and amount of interstate service over the same distance, without regard to their geographical location or the costs of serving their particular region. Under nationwide averaging, for example, household subscribers in sparsely populated rural areas connected by low-capacity, high-cost facilities are provided with interstate telephone service at the same rates as residents of densely populated urban areas connected by high-capacity, lower-cost transmission and switching facilitites.

While these policies have not been immune from criticism, they have had the strong support of the state commissions and of the FCC, and have been vigorously defended in Congress and in the state legislatures.

The relation of household telephone rates to costs, as it developed historically, has been measured in several studies prepared by AT&T. While these studies, like all cost studies, necessarily rest on judgments and assumptions, they are useful in indicating the order of magnitude of the problem.

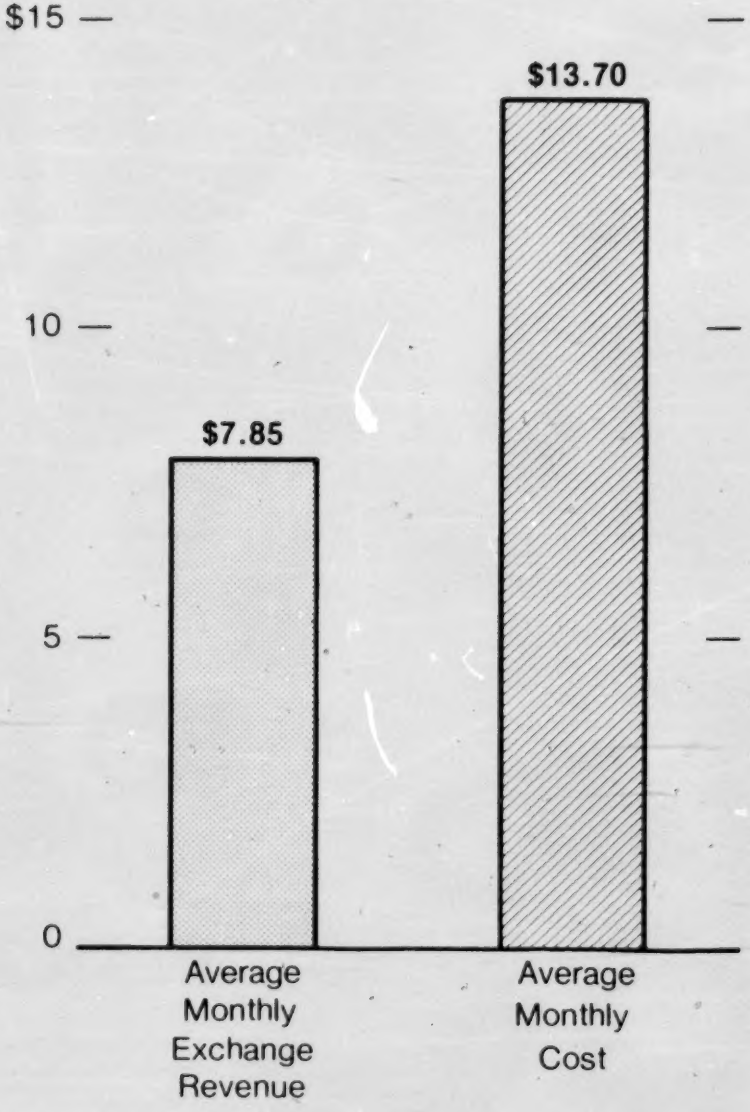
According to one such Bell System study, the Residential Cost Study, the average single line residential telephone user in the United States paid $7.85 for his basic exchange service in 1973. The average monthly cost of providing that service, if it were the only service provided, would have been $13.70, including the common costs of jointly used facilities but not the common corporate overheads. This particular calculation of average monthly cost includes the total cost of a plain telephone set and of the access line to the switching center or local exchange, as well as the costs of exchange calling. This analysis is illustrated in Chart 1.

If basic local service were to be priced so as fully to cover estimates of average costs, the monthly bill for basic local service for millions of residential customers would be increased by about 75 percent, plus whatever additional amounts would be needed to cover corporate overheads. This would amount to several billion dollars a year.

Another study prepared by AT&T, an Embedded Direct Cost Study, was submitted as Exhibit 1 in the Bell System filing in FCC Docket 20003 in April, 1975. It examined residence, coin, and business exchange service as a whole, as opposed to single line residence service alone, as in the study just mentioned. It was done for the year 1973.

Chart 1

Revenues from Basic Residence Service Versus Cost



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There are some differences between the two studies, but their conclusions are essentially the same. The Embedded Direct Cost Study estimated the common cost of joint access and the common cost of corporate overheads, as well as exchange use costs, and compared them with basic exchange service revenues.

There are other differences between the methods used in the two studies, particularly with respect to the cost of capital used. These differences, however, do not affect their common conclusion about basic exchange service. The newer study shows that if services other than basic exchange service were repriced or restructured so as to eliminate the possibility of substantial earnings above direct or average costs, basic exchange rates would have to be increased by about 70 percent. Chart 2 shows the results of the Embedded Direct Cost Study as submitted in FCC Docket 20003.

The level of telephone rates has been remarkably stable during the last 20 years. According to a recent study made by AT&T, summarized in Chart 3, the Disposable Personal Income per capita has increased 192 percent since 1953. The Consumer Price Index has gone up 84 percent. Bell System labor and material costs have gone up 190 percent and 90 percent respectively, while costs to the consumer for residential telephone service have increased only 28 percent, about one third of the general increase in prices for the consumer. Since telephone rates are a component of the Consumer Price Index, this comparison understates the gap between telephone rates and other consumer prices. Despite the burden of inflation, and the high costs imposed on interstate rates by the successive separations plans, interstate toll rates are about 7 percent below the 1953 level, reflecting the cost savings brought about by the Bell System's program for the continuous introduction of new technology and by improved planning, development, management, and maintenance methods for the interstate telephone network.

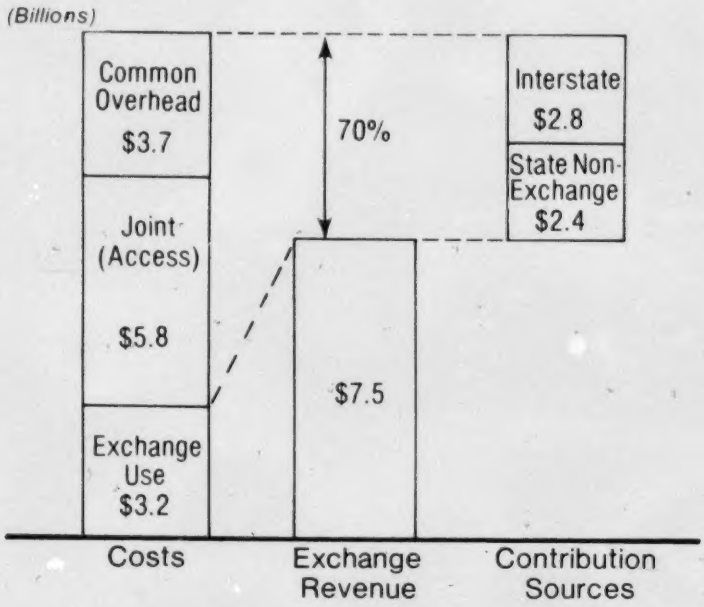
C. The Relation of Western Electric to the Network

Throughout the period during which the modern telephone network has evolved, Western Electric Company, the manufacturing arm of the Bell System, has been an integral component of the telephone network. From time to time, proposals have been made to separate it from the Bell System. Thus far, all such proposals have been rejected. As was pointed out earlier, Congress has reserved jurisdiction through Section 215 of the Communications Act of 1934 to determine such issues itself.

As the American telecommunications industry has developed, the switched network is equipped, maintained, and improved by a process of continuous cooperation among the employees of AT&T, Western Electric, the Bell Laboratories, and the Bell

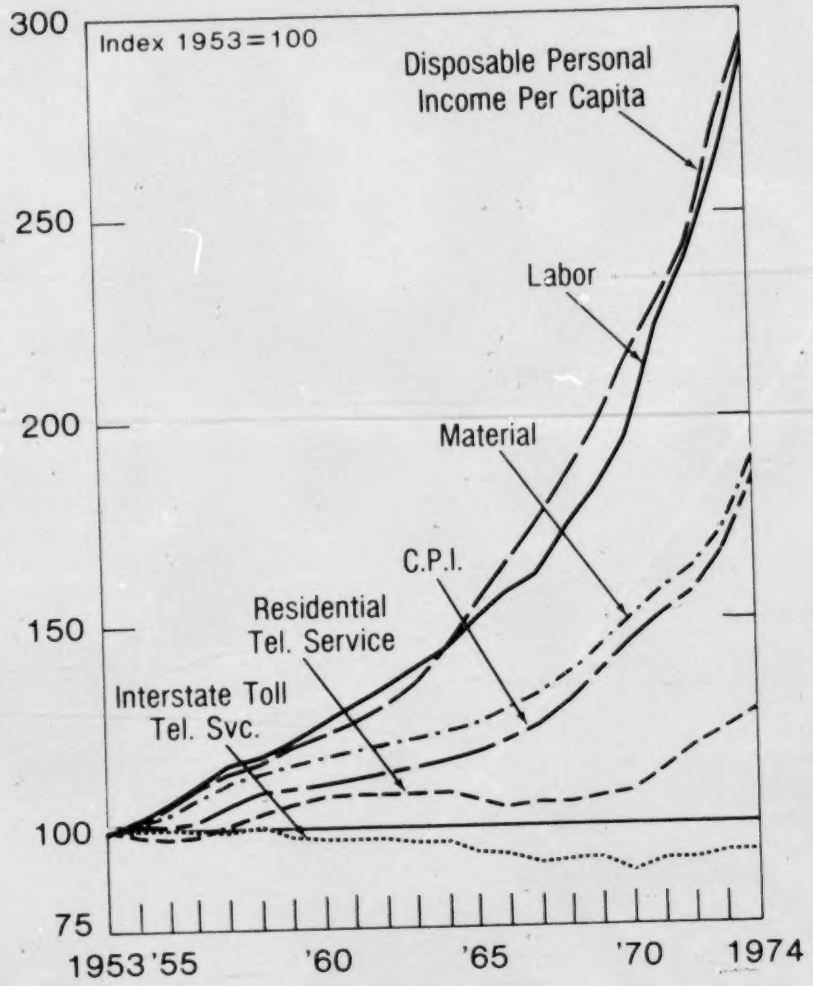
Embedded Direct Cost Study Results*- 1973

(Using Realized Rate of Return as Cost of Capital)



*All Bell System Operating Companies: Long Lines Dept Excluded.

Charges for Telephone Service vs Income per capita, consumer prices and Bell System costs . . .



System and Independent Telephone Companies. The role of Western Electric in this process of cooperation is fundamental to its efficiency, particularly in the development of new products based on Bell Laboratories research, and in the solution of endless equipment problems, large and small, which arise in the functioning, maintenance, and improvement of the network.

Western Electric has never manufactured every item of communications equipment used in the network. Under Bell System policies, the decision to purchase a product from an outside supplier, rather than to manufacture it, is governed by business and technical considerations. Western Electric is largely concerned with the development and improvement of new products, in collaboration with the Bell Laboratories and the operating companies, and with the manufacture of existing products which cannot be procured more cheaply from outside manufacturers. New products come into the system at an astonishing rate. According to Western Electric studies, 22 percent of Western Electric's 1972 output consisted of products which did not exist in 1967. The figure is 49 percent if we take a time frame of ten years, from 1962 to 1972. A McGraw-Hill study based on a broad sample of American industry shows that 13 percent of 1976 sales will be of products introduced since 1972. The corresponding figure for Western Electric is 40 percent.

Western Electric procures equipment for the operating companies either by purchase on the open market or through contracts calling for manufacture to Bell System specifications. And, when it acts as purchasing agent for the operating companies, it exercises quality control procedures in their behalf. Equipment procured for the Bell System from outside suppliers by Western Electric is maintained by the System.

The operating companies do buy equipment directly, and on a large scale, from outside manufacturers. In 1974, Western Electric manufactured about 80 percent of the communications equipment purchased by the Bell operating companies, generating product sales revenue of $4.2 billion. The operating companies purchased communications equipment through Western Electric from outside manufacturers valued at $600 million, and bought about $300 million worth of such products directly.

III. THE FEDERAL COMMUNICATIONS COMMISSION's DEPARTURE FROM THE STATUTORY RULE OF NETWORK UNITY

The line of FCC decisions which began with Carterfone,[1] and Microwave Communications, Inc.,[2] has led the FCC, step by step, to depart from several of the most basic features of the unified and integrated network policy of the Communications Act of 1934. This development has occurred in ways which were unforeseen, and indeed rejected by the Commission when the process began. But the forces released by its initial decisions have proved to be extremely powerful. As a result, the Commission has lost control of its experiment. It has been drawn into positions contrary to its early policy statements, and to the mandate of the Act.

A. The First Cases

In Carterfone, the FCC said that the connection of customer-provided equipment to the network would be authorized, at the customer's choice, unless it were demonstrated that the equipment caused or would cause actual harm to the network, or to the service as a whole, to employees, or to the utility of the system to the public, or had or would have harmful effects upon the carrier's revenues or rate structure. The Commission recognized that interconnection could have harmful technical or economic effects on the system, and that such effects, if shown, "might well be a public interest question" under the Act.[3] It simply decided that in Carterfone no such effects had been proven; that the particular device was not harmful to the system; and therefore that a tariff prohibiting interconnection was discriminatory and unreasonable, since the tariff allowed the interconnection of comparable equipment provided by the Bell System.

The FCC declared that the telephone companies could set up reasonable standards for interconnection devices in order to protect the technical integrity of the network. And it asserted jurisdiction over rules governing interconnection on the ground that such rules could easily be misused to protect a telephone company's equipment against the competition of harmless equipment of like quality. Following Carterfone, the telephone companies filed tariffs for protective connecting arrangements to facilitate the interconnection of customer-provided terminal equipment.

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1. Carterfone, 13 FCC 2d 420 (1968), 14 FCC 2d 571 (1968).
2. Microwave Communications, Inc., 18 FCC 953 (1969), reconsideration denied, 21 FCC 2d 190 (1970).
3. 14 FCC 2d at 573.

In Microwave Communications, Inc., the FCC authorized construction permits for new microwave facilities through which the applicant would become a specialized common carrier telephone company offering its subscribers a limited private line microwave radio service "designed to meet the interoffice and interplant communications needs of small businesses."[1] The service would be available between the company's microwave sites in Chicago and St. Louis, via nine intermediate points.

In the initial MCI case, the connection between the microwave site and the premises of the user was to be provided either by the subscriber or by the local general-service telephone company, but there was no provision for direct connection to the switched network. This aspect of the MCI case is no longer typical of the services offered by the specialized telephone companies. The subscribers to the private line services of these companies and the companies themselves are pressing more and more insistently, and successfully, to be allowed access to the switched network.

In the MCI case, the FCC relied on the representations of MCI that it would not divert business from the Bell System because it was opening up new sub-markets of customers, primarily small businessmen who could not afford Bell System private line services. It distinguished the private line service offered by MCI from that provided by the general-service telephone companies in four particulars: the MCI private line service was not a "through service," telephone to telephone, the FCC pointed out, as Bell System private line services were; it would utilize equipment of lower electronic quality, so that its voice signal would not be so clear; its prices would be lower; and the conditions of its service were thought to be more flexible, particularly with regard to sharing and part-time use. In determining the question of need for the service, the FCC said:

> *. . . the controlling consideration is not whether the existing communications services are being utilized by potential subscribers of MCI, but whether the proposed operation would better meet the particular needs of potential subscribers.*[2]

On the basis of a research study and the testimony of witnesses, the FCC concluded that MCI's offering would permit subscribers ". . . to obtain a type of service not presently available and would tend to increase the efficiency of operation of the subscribers' business."[3] Despite findings that the ex-

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1. 18 FCC 2d at 953.
2. 18 FCC 2d at 959.
3. Ibid.

periment would involve duplication of facilities and less than efficient use of the spectrum space,[1] the application was granted on a "demonstration" basis. Since MCI service was deemed to be "new and different," filling "a serious deficiency in the communication services available to the public," by providing "a service intended primarily for interplant and interoffice communications with unique and specialized characteristics,"[2] it could not divert much traffic from the existing carriers, the FCC thought, or "pose a serious threat to the established carriers' price averaging policies."[3]

The MCI decision brought in its wake a large number of applications by MCI and others for authorizations to construct microwave facilities in order to provide comparable specialized common carrier services. In order to deal with these applications quickly, the FCC initiated a special, nonevidentiary proceeding, based on documents and oral argument, in order to establish policy procedures through which to process such applications. In Docket No. 18920, the FCC undertook to resolve certain basic policy questions which appeared common to all applications, prior to the consideration of individual applications.

In the MCI case, and in its correlative First Report and Order in Docket No. 18920 on Specialized Common Carrier Services,[4] the FCC took the position that it was authorizing new specialized telephone companies only because it was satisfied that the new companies would develop genuinely new services and explore areas of demand not reached by the existing telephone companies. The services proposed in Docket No. 18920, the Commission found, have "technical and service features significantly different from those of the established carriers," although the Commission noted, "to be sure," that "the established carriers now provide data transmission and private line services."[5] Moreover, there might well be advantages to the regulatory process through encouraging new entrants into what the Commission regarded as a specialized and rapidly expanding field: more flexibility and a wider range of choices for the user; relief for the Bell System from some of the burdens and costs of enlarging and maintaining its "public monopoly services";[6] stimulating innovation; and developing a competitive-market benchmark for regulation. A finding on these points, the FCC

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1. Id., at 955, 964-969.
2. Id., at 960.
3. Ibid.
4. Specialized Common Carrier Services, 29 FCC 2d 870 (1971), reconsideration denied, 31 FCC 2d 1106 (1971), affirmed, Washington Utilities and Transportation Commission v. FCC, 513 F 2d 1142 (C.A. 9th, 1975).
5. Id., at 906.
6. Id., at 909.

said, was and would remain the "controlling" factor in its decisions.[1]

It followed, the FCC argued, that the development of specialized interstate telephone companies could not significantly diminish the business of existing companies, and therefore could not threaten the rate and cost averaging system which permits all subscribers of the same class to be treated alike, whether they live in thinly populated or in populous areas. For the same reason, the FCC concluded, the emergence of specialized common carrier telephone companies could not threaten the economic viability of the existing telephone companies. Since for the most part the new companies would be meeting demands presently unsatisfied, by providing services "not now being adequately met by the established carriers" in a large, "latent," growing, and heterogeneous market, the Commission concluded that their business would not be taken away from the existing companies. On the contrary, the development of specialized telephone companies would actually increase the revenues of the general-service telephone companies by expanding the size of the communications market.[2]

> *Most significantly, we see no reason whatsoever to assume that the applicants would divert all or even a substantial portion of that comparatively small percentage of existing and projected Bell System business that is vulnerable to competition. [Even assuming a 50% diversion annually (a figure we consider to be unrealistically high) the growth in regular voice service could absorb virtually all the lost channels in one year. (FCC footnote)] . . . The applicants are seeking in large part to exploit latent demands and may well expand the size of the total communications market.*[3]

The FCC did acknowledge, however, that there would be some competition between the new specialized telephone companies and the existing general-service telephone companies, and therefore some impact of the new entries on rates. In facing that prospect, it conceded that some deviation from traditional ratemaking practices might take place. It said:

> *Where services may be in direct competition departure from uniform nationwide pricing practices may be in order, and in such circumstances will not be opposed by the Commission.*[4]

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1. Id., at 917.
2. Id., at 881-882.
3. Ibid., at 912.
4. Id., at 915.

In its Docket No. 18920 opinion, as in the MCI case, the Commission declared that it was its

> *objective to promote and maintain an environment within which existing and any new carriers shall have an opportunity to compete fairly and fully in the sale of specialized services. . . . There is no reason to deny the public the benefits they may derive from active and vigorous participation by the Bell System and Western Union in this market, so long as their participation is not a burden upon or significantly detrimental to their other services. Thus, it is our intention to permit the existing carriers to price their competitive services in a fashion that will realistically and reasonably reflect economic advantages, if any, that are inherent in the plant and operations of those carriers. Moreover, we subscribe fully to the views of our staff, endorsed by the Department of Justice, that there should not be any 'protective umbrella' for the new entrants or 'any artificial bolstering of operations that cannot succeed on their own merits.'* [1]

The Commission also stressed that interconnection between the new specialized common carriers and the network be accomplished in ways which assured the technical integrity of the network, in order to prevent any degradation of service for all users of the network.

Significantly, the Commission noted that if some of the new market entrants were to fail, their bankruptcy could not affect the public at large, and in any event that

> *if a weaker entrant should encounter difficulty, a merger with, or a sale of facilities to, a stronger competitor is a more likely fate than bankruptcy or removal of facilities from the field.* [2]

It quoted a Department of Justice view that such mergers would not be barred by the antitrust laws.

The policy announced by the FCC in its early cases, although hardly supported by the factual predictions and assumptions on which it relied, was the only legal footing on which the Commission could reconcile its decisions with the concept of the integrated switched network which dominates Title II of the Communications Act. While it has always been assumed that the purpose of the law is to provide a public utility system of interstate telecommunications service on a unified basis, it has

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1. Id., at 915. See also Paragraph 92 at 916, and Paragraph 119 at 926.
2. Id., at 926.

never been supposed that the existence of the integrated telecommunications network prohibited all communications systems in the United States not offered by the existing general-purpose telephone companies. For example, military communications systems, railroad and right-of-way company communications systems, and other purely private microwave communications systems have existed for a long time. Most of them are not connected to the network. Thus it was natural for the FCC to claim that its MCI decision and comparable pronouncements of policy in its Reports and Orders in Docket No. 18920 involved only specialized and distinctive kinds of communications, beyond the natural, convenient, or customary reach of the general-service telephone companies, and the capabilities of the network. No other ground could justify its decisions under the Communications Act.

The Commission has offered basically the same justification for its recent decisions authorizing the development of other specialized common carrier communications companies — those which provide mobile radio telephone services, services for cable and network audio and television, and data transmission, both by domestic satellites and by conventional microwave.

The specialized common carriers of various kinds and the new domestic satellite carriers should be distinguished from another class of new communications companies, the so-called value-added carriers or composite data carriers. These new companies provide specialized data-processing services. They use communications facilities they obtain from the existing general-service or specialized telephone companies in the field of computer-oriented services, news services, and other specialized customer communication services. The development of the value-added carriers does not involve duplicate facilities, rate competition, or the other problems presented by the specialized common carriers, since they use facilities of other carriers for the transmission of their data packets.

The decisions of the FCC in Microwave Communications, Inc., in Docket No. 18920, and in Carterfone, therefore had some plausibility as interpretations of the Act when they were handed down. The specialized common carrier cases probably would not have had a significant impact on the existing telecommunications system if the FCC had adhered to its original rulings in subsequent cases, and particularly to its statement of policy about allowing the existing telephone companies to respond fully and fairly to the lower rates of the new companies, and to establish competitive rates which reflected the advantages inherent in their plant and operations. Save for services which were genuinely novel and could meet the test of the marketplace, entry into the field would not have been attractive if the established telephone companies had been free to reduce their rates normally in order to meet competition.

Similarly, the doctrine of Carterfone would not have offered a major threat to the system if the Commission had adhered to its original rulings with regard to technical safeguards and economic impact.

B. A Policy Abandoned: The Fate of Docket No. 18920

It is now apparent that the optimistic expectations of the early FCC decisions have not been fulfilled. It is equally apparent that the factual distinction between private line and network services on which the FCC relied in its Specialized Common Carrier decision — the controlling legal predicate for this entire line of FCC cases — has lost whatever economic significance it may once have had. Today, at any rate, private line, message toll and WATS services are direct substitutes for each other in the same market. For the most part, the new specialized and satellite carriers are not offering private line services within the definition used by the Commission in its MCI case. Interconnection to the switched network is becoming more and more prevalent. Moreover, the services offered by the new specialized companies have not turned out to be novel, in any sense; virtually all of them are indistinguishable from the private line services offered by the Bell System and the established Independent Telephone Companies. Virtually all are equally "telephone" services, exactly like those offered by the general-service telephone companies; all are equally dependent upon transmission and connection facilities provided by the Bell System and the Independent Telephone Companies; most also depend, to a greater or lesser extent, on connection to the Bell System's exchange switching facilities as well. By concentrating their efforts on high-density, lower-cost routes, the new specialized telephone companies are able to offer their services at lower rates than Bell's nationwide average rates.

The FCC has issued warnings and admonitions from time to time, to the effect that it really will insist on genuine novelty before authorizing new specialized common carriers. In its 1973 Opinion and Order in Commission Policies Governing the Licensing and Regulation of Specialized Common Carriers, for example, the Commission said:

> *Before concluding we reiterate, at this early stage in the development of specialized carriers and services, our expectation that these carriers will offer services to the public which are differentiated from existing services not only in terms of price, but also on the basis of quality and content. It is therefore our admonition that as all new entrants are freed of the difficulties involved in start-up operations and as they expand their operations, and as appropriate terminal equipment becomes available, we will expect them to address themselves to the introduction of new and different*

services. For we adhere to the view expressed in our 1971 decision in Docket 18920 (a view premised in large measure upon the representations of aspiring new entrants) that users should be provided with 'flexibility and a wider range of choices as to how they may best satisfy their expanding and changing requirements for specialized communications services.' We of course assume that existing carriers will likewise respond to their competitive environment with innovative services designed to meet evolving and changing demand for services.[1]

These admonitions continue to be made. Chairman Wiley said on November 3, 1975, in a speech before the National Association of Regulatory Utility Commissioners, that he is "disappointed by the failure of some specialized carriers to fulfill their promise to provide new and innovative services," and expressed the hope that such unique services would emerge, either through the development of superior transmission or switching facilities, or through new entrants using lines leased from the general-service telephone companies. This reiterated the disappointment expressed by Chairman Wiley in his October 15, 1975 remarks at the USITA convention:

. . . . I frankly have been disappointed that some new carriers — while preaching the virtures of diversity, innovation and specialized offerings in the private line market — have attempted to establish what, to me, are clearly basic message services. In my opinion, these attempts represent something of a breach of faith with the Commission and should be precluded by definitive administrative rulings.

But the effect of such admonitions has faded away as a practical influence in FCC decision-making. The Commission continues to act favorably on applications which do not purport to offer novel services, as it did in the United States Transmission Systems case in 1974.[2]

The specialized telephone company industry now includes five companies and their subsidiaries.[3] Three other companies have been authorized to provide such service, and propose to do so. According to Mr. Walter Hinchman, Chief of the Common Carrier Bureau of the FCC, their gross revenue was $1.5 million in 1973, and $15 million in 1974.[4] These figures correspond closely to

1. Commission Policies Governing the Licensing and Regulation of Specialized Common Carriers, 44 FCC 2d 467 (1973), at 473-474.
2. 48 FCC 2d 859 (1974).
3. Hearings before a Subcommittee of the Committee on Appropriations, U.S. House of Representatives, 94th Congress, 1st Session, Part 6 (1975) at 373.
4. Id., at 370, and Remarks by Walter R. Hinchman before the ICA, San Francisco, California, May 16, 1975.

estimated revenue losses for the Bell System in this field, as presented in Bell Exhibit No. 8, in FCC Docket No. 20003, dated April 21, 1975. Estimates offered by the specialized telephone companies themselves claim very much higher gross revenues for 1975. Some studies, notably one made by the Arthur D. Little Company, indicate the possibility of extremely high rates of growth by 1980, if present regulatory policies were to prevail.

The potential development of communications services offered by specialized common carriers using domestic satellites is of comparable, or even greater, significance. The FCC has authorized four such companies; two, in addition to Western Union, are actually in operation.[1]

1. Restrictions on the Competitive Response of the General-Service Telephone Companies

The ultimate reason for the growth of the specialized common carriers of all types is that the FCC has failed to carry out the assurances of its early opinions that the existing general-service carriers would be allowed to compete with the new carriers "fully and fairly." On the contrary, the FCC has consistently and systematically protected the new specialized telephone companies as an "infant industry." Its policy seems to be that unless the new companies are given a four or five years' head start, under the protection of FCC rules restricting competition, they cannot become economically viable. The Commission has delayed or opposed competitive rate reductions by the established telecommunications companies, even though the competitive rates filed by the existing carriers, save perhaps in one minor aspect of the Hi-Lo Tariff case, were above any possible measure of incremental or even average costs. And it has imposed delays and other special conditions on their ability to initiate or expand comparable services.

In its decision on Domestic Satellites,[2] for example, the FCC ruled that AT&T should be prevented for three years from using its domestic satellite system in providing commercial private line services. In its decision and orders on Land Mobile Radio Telephone Services, during 1974 and 1975, the established telecommunications companies were placed under special restrictions both in the procurement of equipment and the provision of services.[3] And in the important field of digital data transmission, the FCC promptly authorized the applications of Datran, a specialized common carrier, but delayed and restricted

1. Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, 94th Congress, 1st Session, Part 6 (1975) at 373.
2. Establishment of Domestic Communications-Satellites by Non-Governmental Entities, 35 FCC 2d 844 (1972).
3. 46 FCC 2d 752 (1974) and 51 FCC 2d 945 (1975).

the proposals of AT&T in the same area, both with respect to the number of cities it could serve, and the rates it could charge. It went so far as to require most Bell System rates to be above those of its specialized competitors.[1]

The FCC's record of protectionism is even more striking with regard to prices. While it has given lip service to the principle, originally supported by the Department of Justice, that there should not be a " 'protective umbrella' for new entrants, or 'any artificial bolstering of operations that cannot succeed on their own merit,' " [2] the effect of its decisions has been to provide the new entrants with precisely such protective umbrellas and artificial bolsters. The FCC has consistently resisted and delayed the price responses of the general-service telephone companies to competition.

For example, AT&T had to go to the Court of Appeals for the Second Circuit in order to put rates for television customers into effect, and to set aside an FCC ruling requiring special Commission approval for the filing of rates.[3]

And in the important conflict over specialized and satellite common carriers providing private line services, AT&T proposals for revised tariffs (the so-called Hi-Lo tariffs) were delayed far beyond the statutory period of three months, at the request of the Commission. Indeed, while those rates are now in effect, the FCC has not yet finally ruled on the validity of the Hi-Lo tariffs, filed in November, 1973. On September 18, 1975, the Commission filed an Interim Decision and Order in the proceeding, Docket No. 19919, remanding the case to its Administrative Judge on the ground that the record in the case was not sufficiently complete to support a final decision.

The Hi-Lo tariffs for Bell System private line services represent a departure from the principle of nationwide averaging. This step was undertaken in order to permit the System to meet the competition of the specialized and other common carriers offering private line services. The basic idea of the Hi-Lo tariffs was to price facilities in high-density areas at lower rates, reflecting the lower average costs of such services. The tariffs increased charges over low-density routes, reduced charges over high-density routes, and provided separate rates for short hauls.

The Commission placed the burden of proof on AT&T to justify the reasonableness of the charges: In order to determine that the rate differences between high and low-density routes are reasonable, the Commission said, "AT&T must demonstrate that none of the like services is cross-subsidized by other services

1. 50 FCC 2d 501 (1974).
2. 29 FCC 2d at 926.
3. American Telephone Company v. FCC, 487 F. 2d 865, (2nd Cir., 1973).

fered by the company."[1] In order to justify the Hi-Lo rates as a reasonable response to competition, the Commission ruled, AT&T must demonstrate "competitive necessity," which the Commission said required a showing that those receiving the lower rate had an alternative source of supply and would in fact shift to the alternative supplier in the absence of the lower rate; that the rate is "just sufficient" to retain the business that would otherwise be lost; and that

> *the discrimination benefits the users of the companies' services who are discriminated against, i.e., charges to other users are lower because of the discriminatory rate than they would be without such rates.*[2]

Instead of using the relatively simple tests of incremental costs as the benchmark for judging the reasonableness of a minimum rate, the Commission seems to be adopting complex and nearly meaningless standards which in themselves impose a nearly impossible barrier to competitive rate responses, and constitute a protective umbrella for the specialized common carriers, and a manifest restraint of competition. Under such rules, it would take years to determine the validity of competitive price changes. They are entirely without justification in economics or law.

By way of contrast, the FCC allowed tariffs filed by the specialized private common carriers, in response to the Bell Hi-Lo tariff, to go into effect on one day's notice, despite the fact that the specialized companies' purported "competitive responses" were not supported by data of any kind. They simply undercut the Bell System's Hi-Lo rates across the board.

In this context, the effect of S. 2054, and H.R. 7047, now before Congress, and supported by the FCC, becomes apparent. The Bill would extend from five months to one year the time during which the FCC could delay the effectiveness of rate changes filed by common carriers under the Communications Act. That Bill would make it possible for the Commission to shelter the new specialized common carrier telephone companies against competition for an additional period, and thus give these protected companies an opportunity to gain a position in the market which could not otherwise be attained.

While the FCC's doctrine of "full and fair" competition in what the Commission assumes to be a distinct "market" for interstate private line services has thus far been illusory, so far as the Bell System and the established Independent Telephone Companies are concerned, it has had some important implications for the

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1. Docket No. 19919, Interim Decision and Memorandum Opinion and Order, FCC 75-1043 (1975), at 11.

2. Id., at 26-27.

specialized telephone companies, including the domestic satellite companies.

In order to assure full and fair competition between the new specialized common carriers and the general-service telephone companies, the Commission has decided that the general-service companies are required as common carriers to provide the specialized companies with the same interconnection facilities they use in their own private line services.[1]

The facilities in question permit the connection of specialized common carrier intercity microwave facilities to local and intercity facilities of the Bell System for purposes of local access and local distribution, and also for limited distribution from a second area. One of these connection arrangements, known as Foreign Exchange, uses a private line service to extend regular exchange telephone service. It connects a private line channel directly to the public switched service network. In effect, it allows a businessman in one city to maintain a local telephone in another city for intrastate as well as interstate calls. The phone in the first city is accessible to subscribers in the second city as though it were a local telephone there. The second facility, known as a Common Control Switching Arrangement, establishes an intercity private line switching system through special large switches on the local telephone company's premises, interconnected by private line circuits. These switching systems are shared among other private line customers, linking various offices of a large company by means of private line circuits. In many cases, they are also used for regular Message Toll Service calls of the public switched network.

The FCC's decision in this case stands the original MCI and Specialized Common Carrier decisions on their head. In those decisions, the FCC justified its ruling precisely because the specialized companies' offerings were different from the private line services provided by the general-service telephone companies. Now it says that the general-service companies must provide their specialized competitors with the same network interconnection facilities they use in providing their own private line services. It is hard to imagine a result which more completely denies the customers of the general-service companies of the competitive advantages inherent in their plant and structure — the test announced in the Specialized Common Carrier case.

On July 2, 1975, the FCC issued a warning signal that there might well be limits beyond which it would not go in protecting the development of the new specialized common carrier telephone companies. In a letter based on its own investigation, and an informal complaint filed by AT&T, the Commission

1. Bell System Tariff Offerings, Docket No. 19896, 46 FCC 2d 413 (1974), affirmed, Bell Telephone Company v. FCC 2d (C. A. 3rd, 1974).

ordered MCI to discontinue its Execunet service, on the ground that it was not a service MCI had been authorized to provide.

The Execunet service is a leapfrog plan, which enables MCI subscribers to make ordinary long distance calls without paying ordinary long distance rates. The MCI subscribers use Bell's local switched network in the cities where they are located to dial the MCI intercity facilities, and then connect to Bell's local switched network in the city they are calling. Execunet subscribers obtain a station-to-station service, through which they can use any telephone provided as part of local exchange service to call any local exchange telephone in distant metropolitan areas. Thus they make ordinary long distance calls between major cities over high-density routes at reduced rates. Execunet utilizes the local exchange units of Bell's switched network, but avoids the regular tariff charges, based on nationwide averaging and separations procedures, for using the intercity parts of the Bell network.

In its Execunet order of July 2, 1975, the Commission recalled that its original statement of policy regarding specialized common carriers had contemplated that they would operate

> *only in the private line field, not in the area of switched public message telecommunications service. For example, in discussing the projected growth in telecommunications services, the Commission stated: 'It is clear, moreover, that this projection is based primarily upon the rapidly expanding growth in local interstate use of standard voice communications services of the Bell System — services which the applicants do not seek to provide.' 29 FCC 2d 870, 904 (Emphasis added by the FCC).*[1]

The FCC order was appealed to the Court of Appeals for the District of Columbia by MCI, and its effect stayed by that Court, which has since remanded the case to the Commission.

It is too soon to predict the outcome of the present proceedings before the Courts and the Commission. But it is clear that the controversy sharply defines the nature of the threat the specialized telephone companies offer to the existing rate structure for telephone services, and demonstrates the fact that the services they offer are indeed identical to those provided by the general-purpose telephone companies.

The evolution of FCC policy in this area, highlighted by its Execunet decision, is plain. Having launched the experiment of authorizing some competition in the provision of private line services, which it assumed was a distinct market, separate from the markets for the services provided by general-service

1. Letter Order of July 2, 1975, FCC No. 9510 at 2.

telephone companies, the Commission found that the experiment could not succeed unless the new entrants were sheltered from competition. Thus the Commission was led into precisely the error which the Supreme Court had condemned in the RCA case.[1] The Commission treated the entry of new competitors as the legitimate goal of its action, an end in itself, and lost sight of the overriding policy of the Communications Act, the development and improvement of the integrated switched network as a public utility through which the American people were to be provided with telecommunications services within its capacity.

C. Customer-Owned Equipment

The FCC has also failed to carry out the policies announced in its Carterfone decision with regard to the connection of customer-owned terminal equipment to the network. That case left the problem of safeguarding the technical integrity of the network to the carriers, subject to Commission review of carrier-filed tariffs, and it recognized the economic viability of the network as a public interest factor which should be taken into account in interconnection cases. In the development of engineering standards to govern the process of interconnection, however, the staff of the Commission has been proceeding on a different footing. It is now opposing strict rules, including those proposed by a special study panel of the National Academy of Science, in favor of easy certification and registration methods which would facilitate interconnection, but at the cost, many experts believe, of greater risk to the technical integrity of the network. On October 31, 1975, the Commission accepted a certification procedure for certain classes of terminal equipment, in a decision in Docket No. 19528.[2] Chairman Wiley has indicated that the Commission intends to extend its certification procedure to PBX, key telephone systems, and main telephones.[3]

The development of the Carterfone doctrine has also led to a conflict between state and federal regulatory policy in the field.

In Telerent Leasing Corp.,[4] the FCC held that its prior decisions, particularly Carterfone, preempted state regulation with respect to the interconnection of terminal equipment for the

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1. FCC v. RCA Communications, Inc., 346 U.S. 86, 93 (1953). See quotation supra at 6.
2. Docket No. 19528 FCC 75-1248 (1975) First Report and Order — Adopted: October 31, 1975.
3. Richard Wiley address before the 87th Annual Convention of the National Association of Regulatory Utility Commissioners, Boston, Mass., November 3, 1975 at 5.
4. Telerent Leasing Corp., 45 FCC 2d 205 (1974).

provision of both intrastate and interstate exchange service, despite the provisions of Sections 2(b) and 221(b) of the Act.

In dealing with an indivisible national network of interconnected telephone exchanges, providing the only means through which subscribers can make local, interstate, and international calls, under a statute which gives the Commission "plenary and comprehensive regulatory jurisdiction over interstate and foreign communications services," the Commission concluded that where there is conflict between an FCC rule and one promulgated by state authority, "the Federal role must be controlling."[1]

More recently, in the Mebane Home Telephone Company Docket,[2] the Commission applied the Carterfone ruling to the customers of a small Independent Telephone Company in North Carolina, and did so without regard to the apparently serious economic impact of its action on the financial condition and rate structure of the company. The Mebane case effectively inters the economic criteria of Carterfone as a public interest factor in interconnection policy. In Carterfone, the Commission said that the economic effects of interconnection upon a carrier's rate structure "might well be a public interest question." In its recent cases, it seems to treat the interconnection of customer-owned equipment as a natural right, subject to minimal rules for the technical protection of the network. If it refused to consider the economic impact of interconnection in the Mebane case, it is hard to imagine a case in which it would do so.

D. The Economic Consequences of Recent FCC Decisions

The trends which have gained in momentum since Carterfone, Microwave Communications, Inc., and the Reports and Orders in Docket No. 18920 and Docket No. 19896[3] have made it clear that the present policies of the FCC threaten not only the technical integrity and economic viability of the national switched network, but the rate structure and rate levels for telephone services throughout the United States.

As a result of the developments which followed the Docket No. 18920 decision, significant amounts of revenue have already been diverted from the established general-service telephone companies to the new specialized telephone companies, which have been allowed to operate in the same field, and to con-

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1. 45 FCC 2d at 214-215.
2. Mebane Home Telephone Company, Docket No. 20476 FCC 75-534 (1975).
3. Bell System Tariff Offerings, 46 FCC 2d 413 (1974), affirmed, Bell Telephone Company v. FCC F 2d (C.A. 3rd, 1974). See discussion supra at 32.

centrate in the high-density, lower-cost markets where they can expect to have favorable profit opportunities. It has become apparent that a continuation of these developments would have a substantial impact on the revenues of the Bell System and the Independent Telephone Companies. The established general-purpose telephone companies have responded to the pressure, and the prospect of more pressure, by seeking to adjust their rates for competing private line services, and for other categories of service as well.

It is obvious that a prolongation of these trends would bring about far-reaching changes in the historic pattern of telephone rates in this country. As was noted earlier, the practice of basing rates on the value-of-service principle, as determined by the intensity of consumer demand for the several categories of service, has resulted in rates for residential subscribers which are lower than they would otherwise be, due to the contributions from other services that help to cover common costs. This economic fact is an important basis for separations procedures, established by federal-state cooperation consonant with the provisions of the Communications Act. Under existing separations procedures, which prescribe the allocation between intrastate and interstate services of the costs of plant jointly used in the provision of such services, approximately 30 percent of the revenues for interstate message toll and WATS services are in effect used to help cover the costs of providing local service. This pattern of rates, based in part on allocations of common costs between interstate and intrastate service, cannot survive if rates for intercity services are forced down towards limits of cost by the introduction and protection of competing specialized telephone companies and other purveyors of intercity service.

The new competition sponsored by the FCC cannot be confined to a competitive segment of private line services. Private line services do not constitute a "market." For many users of telecommunications services, the alternative to private line service is ordinary long distance service, WATS, or other special services provided by the switched network. The various classes of service compete directly. Over a large zone of use, these services are directly substituted for each other, depending upon rate-levels. The distinction between private line and MTS or WATS services is already an artificial one. As Chairman Wiley of the FCC has recently noted, it is likely soon to disappear altogether.[1]

The continued proliferation of specialized and satellite common carrier telephone companies, providing com-

1. Richard Wiley, Speech before the 87th Annual Convention of the National Association of Regulatory Utility Commissioners, Boston, Mass., November 3, 1975, at 10-11.

munications services for larger business subscribers at rates below those of the Bell System and the Independent Telephone Companies, will inevitably affect both long distance and local rates for customers who cannot use the private line services of the specialized telephone companies. In the studies quoted earlier, it was concluded that if basic local service were required to cover its full "stand alone" costs, the monthly bill for basic local service for millions of residential customers could be increased by as much as 75 percent, or several billion dollars every year.

No one is predicting this will happen immediately or in precisely this dimension. But the AT&T analysis indicates that the ultimate impact of changes in pricing patterns, brought about by an indefinite continuation of the present policies of the FCC with regard to specialized telephone companies, could be substantial indeed.

A Committee of the National Association of Regulatory Utility Commissioners, state officials who are directly responsible for regulating residential and intrastate toll rates, has concluded that the present policies of the FCC towards interconnection and specialized common carriers will inevitably force an increase in rates for residential customers. The NARUC Committee found that competition in certain terminal equipment markets and in the interstate private line business would bring about "a substantial adverse economic impact on local exchange telephone subscribers."[1] The same conclusion was reached by a recent staff study of the New York Public Service Commission,[2] and in a study made by Systems Applications, Inc., on behalf of the United States Independent Telephone Association, USITA. The latter study concluded that the economic impact of competition by specialized common carriers and interconnection companies on the Independent Telephone Industry will be severe, and that the "ultimate victims will be the users of basic telephone service."[3]

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1. National Association of Regulatory Utility Commissioners, Committee on Communications. Report After Investigation: An Investigation Into the Economic and Quality of Service Impact on Telephone Service Subscribers Resulting from the Interconnection of Subscriber-Provided Equipment to the Public Switched Telephone Network, and from Competition by the Specialized Common Carriers in the Provision of Telecommunication Services, May 15, 1974, at 18.

2. New York Department of Public Service, Communications Division. The Revenue and Cost Impact of Interconnection Within the Service Area of New York Telephone Company. January 1975.

3. Systems Applications, Inc., Regulatory Policy Changes and the Future of the Independent Telephone Industry: A Study of the Economic Impacts on Independent Telephone Companies and their Customers from Competition in Selected Telecommunications Markets, October 1975. p. iv

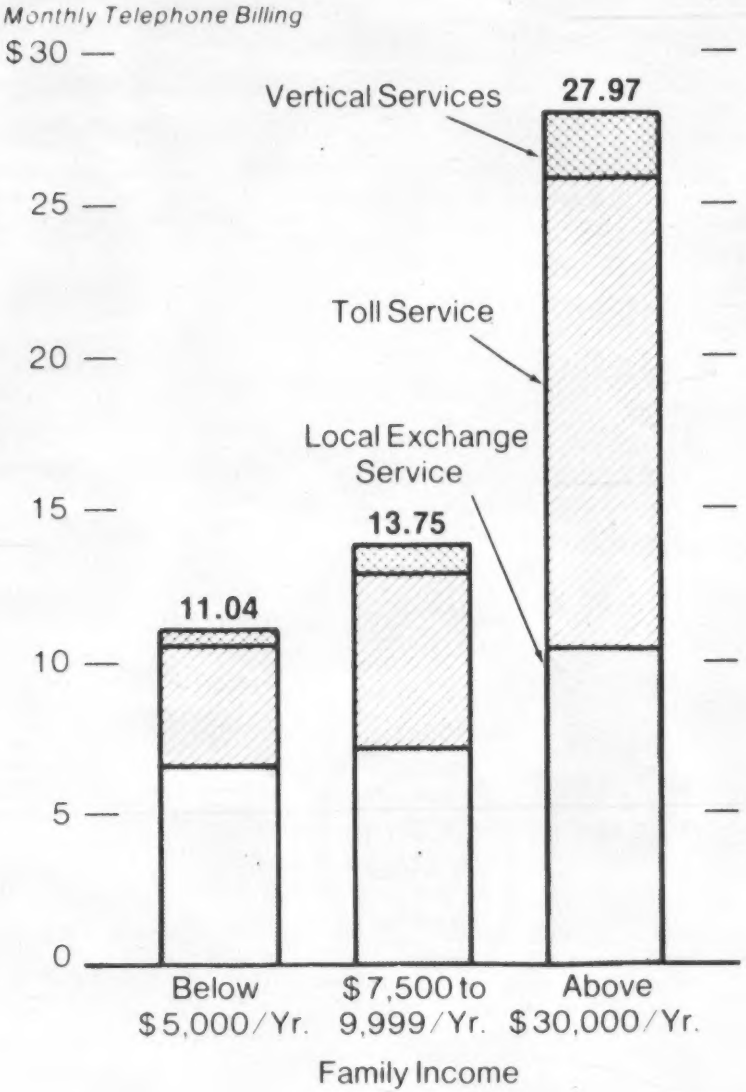
Chart 4 portrays who would be hurt most among different residential customers. Obviously, low-income customers tend to restrict themselves more to basic local telephone service. High-income customers can afford more long distance calls, and various extras such as multiple sets and more elaborate equipment in the home. These are labeled "vertical services" on the chart. A general movement towards cost-oriented ratemaking, in order to meet the new competition of specialized common carrier services and of terminal equipment suppliers, would tend to reduce long distance rates and rates for the supplemental "vertical" services enjoyed by the more affluent, and to increase rates for basic service. Thus the cost of the change in policy would fall primarily on the low-income customer, the elderly, and others on fixed incomes. Many could well be forced to give up telephone service altogether.

The significance of shifting a substantial rate burden from business firms to residential customers generally is greater than most observers would have supposed as a matter of first impression. A 1972 survey made by AT&T indicated that approximately 20 percent of the households with telephone service had incomes of less than $5,000 per year. The median income for the group surveyed was between $7,500 and $10,000. In the group with incomes under $5,000, about half of the customers of the Bell System were over 64 years of age.

1. The Economic Relation of Costs and Prices: Costs as a Floor, Not a Norm for Pricing

One of the ultimate questions of policy in this area is whether Congress wishes to preserve rate patterns which reflect the fact that telecommunications service is worth more to business users than to households, and worth differing amounts to different classes of users. To put the issue in economic terms, in a market where the product or service is not fungible, and purchasers cannot sell to each other, prices in the short run should be addressed to the fact that the demand curves of different classes of users for the same product or service have a different quantitative content — not different elasticity, necessarily, but a different relationship between the price charged and the amount purchased. As was pointed out earlier, (pp. 13-14, supra), such a rate pattern is the normal and economically sound way of pricing services under such circumstances. But a trend towards cost-oriented rates — rates much closer to the direct costs of providing each service — is inevitable if the FCC continues to license specialized common carriers freely, and if its interconnection policies remain what they are. This will be true even if the established general-service telephone companies are allowed to respond promptly and effectively to such competition by reducing their rates for terminal equipment and the provision of private line and then of all interstate telecommunications services.

Low income customers would be hurt most by selective competition . . .



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The FCC has indicated that it favors a policy of moving towards cost-oriented rates, as a matter of principle. As an abstract proposition, such a policy has considerable support among economists and other experts in regulation.

In approaching this topic, one should distinguish two quite different problems which are often considered together: (1) using "average-costs," "fully distributed costs," or "incremental costs" as general criteria for ratemaking; and (2) determining what constitutes "predatory pricing," or "sales below cost," in evaluating the price response of a regulated telephone company to competition. The second issue — that of establishing limits for the price response of the established general-service telephone companies to the lower prices of the specialized telephone companies and other competitors — was left open by the Commission when it announced its policy of allowing the general-service telephone companies and Western Union a full and fair opportunity to compete with the specialized common carriers in its Docket No. 18920 Order, and the authorizations which have flowed from it.

The Commission's Interim Decision and Order in the Hi-Lo case,[1] did not settle the problem, although it was examined in some detail. The policy of allowing the general-service telephone companies to compete fully and freely with their specialized competitors will be devoid of content until the Commission — or Congress — establishes economically sound and practicable minimum rate standards to govern the competitive response of the general-service companies to the lower prices of their competitors. The question is central to the entire controversy, and to the future of the integrated network.

My opinion is (1) that short-run incremental costs are the economically correct floor for competitive rate reductions; it follows that no price which covers short-run incremental costs can be considered "predatory," or a "sale below cost"; (2) that neither average costs nor incremental costs at any particular moment or short period of time are economically sound general standards for ratemaking; and (3) that the adoption of cost-pricing as a rate principle (rather than as a limit for price reductions) would result in a serious misallocation of resources.

The economic definition of the short-run is the period during which the supply of capital and other resources brought together in a productive unit is fixed; the long-run is the period during which changes can occur in the stock of capital and other resources available to the productive unit.

The flow of capital into the telephone system is continuous, and occurs on a large scale. Determining the shortness of the

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1. See pp. 30-31, supra.

short-run in the telephone industry is therefore a difficult task. As a practical matter, the short-run for the telephone industry should be considered intermediate in duration, and allow for some adjustments of the capital stock. But such economic calculations should not be confused with measures of conditions in the long-run.

The standard case for cost-pricing in a regulated industry rests on the following argument:

(1) The goal of regulatory policy, the advocates of cost-pricing contend, should be to achieve through regulation the level of prices that would have been achieved by the competitive market, if there were one. Economists of this opinion then point out that under conditions of long-run competitive equilibrium, the market would result in prices which approximate the variable costs incurred in producing the marginal unit of output. At that level of output — at which it would not pay the supplier either to increase or decrease his production — marginal costs also equal average costs for the whole supply provided.
(2) From this unexceptionable proposition, some economists then slip into error by taking a further step. Regulation, they say, should seek to achieve rates which are equal to marginal or incremental costs — or average costs — not at some hypothetical future point of long-run equilibrium, but now.

This approach confuses long-run and short-run criteria for competitive prices.

In a dynamic economy, "now" is never a point of long-run equilibrium, either for prices or for output. In the real world of endless changes in all the relevant variables, long-run equilibrium is never reached, and what demand or supply would be at that point cannot be measured or even estimated. Long-run equilibrium is an important and useful concept, which helps economists to perceive the relationships among economic forces, and to predict future developments, just as a similar rule about the tendency of atmospheric pressure towards equality helps meteorologists predict the weather. It is a concept which defines trends, not actual results at any given point of time. And it is not a standard which can be used in ratemaking.

Competitive pressures tend to press the price and output policies of competitive industries towards a position of long-run equilibrium, through attracting new captial and new entrants into a profitable market, or driving resources out of an unprofitable one. But at any moment of time, the theory of competition assumes that most actual prices, as determined by demand, will be above or below average costs. Some suppliers are better located or better managed than others, or have lower costs for some other reason. They will earn more, or lose less, than the representative firm. For the market as a whole, however, market prices will not in the short-run correspond to any norm of cost. The differences between prices and costs are the key signals of

the market system, guiding the flow of capital and other resources to the most economic possible uses through time.

At any given moment of time, therefore, pricing should be addressed to short-run conditions, not those of long-run equilibrium. No one can possibly estimate what the long-run level of output would be either at current prices, or at any other level of prices. Nor can any one now estimate the intensity of the demand for a given product or service at the point of long-run equilibrium. Such calculations would depend on what the overall level of income would be at that undefined future time; on the prices and costs of all other commodities and services; and on the pattern of demand (at such levels of income and prices) for all the goods and services offered by the economy. As Keynes once remarked, all we can really say about the long-run is that in the long-run we shall all be dead.

Indeed, it is difficult, though not impossible, to estimate what volume of output would be sold to different classes of users at different prices even in the short-run or the intermediate run.

Both in regulated and competitive industries, prices at any given point in time should thus reflect demand, for the reasons given at pp. 13-14, supra, in explaining the value-of-service rule for pricing telecommunications service. In all markets, competitive and non-competitive alike, short-run cost is relevant in the first instance to the determination of output, not of price: Responding to the expected market price, or the price established by regulation, suppliers continue to produce so long as they expect to make anything by offering more — so long, that is, as the expected price covers the variable short period cost to them of producing one more unit of output. At that price, for most producers, revenues may be more or less than their average costs for producing the whole supply they are offering. This rule — that output be expanded so long as incremental revenues cover the incremental costs of providing the marginal or incremental unit of the product or the service — is the economically correct welfare criterion for determining how far the existing stock of capital and other resources should be used in the provision of output for the market.

The impact of output on price is the obverse of this analysis. The output elicited from suppliers by expected prices can be sold only at the prices indicated by the demand curve for the product or service. The expected price may give rise to more or to less output than the market will absorb at that price. In such a case, prices will fall or rise, if the market is sufficiently competitive. If the market is not competitive, output will not be sold, or will prove to be in "short-supply."

Thus short or intermediate run cost criteria should be invoked in the regulation of the communications industry not as a benchmark for fixing actual rates, but as a floor for determining the

economic soundness of competitive rate reductions. No rate can be considered "predatory" if it covers incremental costs.

These conclusions do not, of course, constitute the whole of an adequate program for regulating utility rates. Established rules of fairness are necessary to assure universality of service on a common carrier basis, and to prevent undue preferences or discriminations within each class of consumers. And regulation must assure an adequate but not excessive overall rate of return, within the principles of the Hope Natural Gas case.

2. Other Effects of Recent FCC Policy

The transformation of the historic pattern for telephone rates being accomplished by the recent policies of the FCC would have another result, beyond reducing rates in areas of competition, thus requiring rate increases for household subscribers in order to permit an adequate overall level of return. It would necessarily also increase the total real cost of communications for the nation as a whole, because it is requiring a wasteful duplication of expensive communications facilities. The new specialized private line telephone companies have all made substantial investments in equipment and organization. Were these investments rational, from the point of view of the economy? Did the network itself have sufficient capacity at the time to provide the services offered by the new specialized carriers, or would the Bell System and the Independent Telephone Companies have had to make comparable investments themselves? If so, would those investments have been more or less costly than those made by the specialized microwave and domestic satellite carriers?

These questions cannot now be answered with certainty. The Commission assumed in its early decisions that the new companies would provide largely novel services not otherwise offered in a large, growing, diverse and heterogeneous market. In fact, experience establishes that the new services are not in fact novel, and that the business of the new specialized companies was largely diverted from the private line traffic of the established general-service telephone companies (see p. 26, supra).

Under the circumstances, it seems safe to conclude that a large part, if not all of the specialized companies' investments was wasteful, since nearly all the services they offer are provided also by the existing general-purpose telephone companies. They do not represent an increase in the total demand for communications services, but a shift of that demand from one supplier to another.

In the long-run, these investments would be wasteful in another sense as well, in that they would complicate the task of network planning and management by adding new problems of accommodation, and slowing up its development at an optimal rate. The rate of introduction of new high-capacity, low-cost technology into the network is determined largely by its growth.

New generations of low-cost transmission equipment with extremely large capacities are being developed for introduction into the network. It will not be economical to invest in such equipment if a considerable volume of intercity communication is withdrawn from the network and handled by specialized telephone companies.

A third inevitable consequence of the FCC's policy of authorizing more and more specialized common carrier communications companies, and then protecting them against competition, would be its impact on the technical integrity of the network. The network is composed of trillions of parts, which must work at any moment with great precision in harmony with all the others. The introduction of facilities and services provided by competing companies, with different standards of quality control, and different arrangements for installation, maintenance, and repair, would undermine the present organizations for planning and operating the network, and place its technical integrity, and its capacity for efficiency and optimality, in question.

IV. THE ISSUES IN THE DEBATE

The developments which began with the FCC's Carterfone, MCI, and Specialized Common Carrier decisions are transforming the economic and regulatory environment within which our telephone system functions. These rapid processes of change present a series of fundamental questions about the future of communications policy which only Congress can answer.

The key issue in this related group of controversies is to define the scope of the national public utility franchise granted to the established general-service telecommunications common carriers under the Communications Act of 1934. All the participants in the recent debate acknowledge that the standard of the public interest, which is the guiding principle of the Communications Act, requires the integrated and unified switched network, connecting every user of the network to every other user, and directs the FCC to assure its development and improvement as a regulated public utility. The integrated telephone network has long provided not only public message services but private line, data, and other telecommunications services within its capacity. It has been taken as axiomatic that the Communications Act properly treats the integrated switched network as a regulated "natural monopoly," for reasons of technology, economy, and convenience which are now even more compelling than they were when the Communications Act was passed.

While everyone agrees that the Communications Act requires an integrated and unified network, there is considerable diversity of opinion as to the reach of that rule. Where does the network end? Does it extend only to voice services? Only to voice, record, and data services which "have to go through the switching facilities of the network"? To "traditional" or "conventional" services, as distinct from "new" services? To all the services the network is capable of providing? Should the network be defined as the transmission and switching facilities of the system, or does it necessarily include the research, development, manufacturing, and systems management resources on which its operations, maintenance, and improvement depend?

The distribution between voice and record services has long since disappeared, as a matter of technological fact.

The debate really concerns the extent to which the concept of the switched network, as it has developed historically under the Communications Act and its predecessor statutes, should (1) preclude the development of competing telecommunications services which are or could readily be provided through the telephone network by the Bell System, in cooperation with the established Independent Telephone Companies and the newer

"Value-Added" specialized communications services companies; and (2) limit the process of connecting customer-owned terminal equipment to the network.

Once these questions are answered, the issues sketched above fall into place.

The degree to which the switched network should be treated as a regulated monopoly in providing telecommunications services within its capacity has proved to be a difficult and controversial question. Thus far, few commentators have approached the problem in the perspective of what Congress intended when it passed the Communications Act of 1934, and its predecessor statutes.

Some contend that the Bell System and the Independent Telephone Companies should have a monopoly only of communications services "which have to go through the switched network," and that competition should be allowed for other classes of service. The difficulty with this definition is that the new specialized telephone companies are pressing more and more insistently, and successfully, for the right to connect to the switched network, and to use some or all of its facilities. For the most part, their customers do not want to talk only to themselves. In any event, as was pointed out earlier, private line services cannot be treated as a separate market, insulated from the market for intercity services based on the network. Private line and intercity toll and WATS services are in direct competition; with improved transmission and switching facilities, their substitutability will become nearly complete.

Others have proposed alternative definitions for the scope of the switched network as the natural monopoly posited by the Communications Act. They say the existing general-purpose telecommunications companies should have a monopoly in providing "conventional" telephone service, or "traditional" telephone service. For example, the FCC provided the following statement, in May 1975, in response to a request from a member of the Committee on Appropriations of the House of Representatives for a statement of the long range plans of the Federal Communications Commission with respect to competition in the telecommunications industry:

> *The FCC's long-range plans for competition in the telecommunications industry are geared to allowing the public to obtain maximum utilization of the communications services it purchases through the leasing of specialized communications services and the purchase of terminal equipment. Competition in these two areas has been found to be feasible. We are presently inquiring into both the technical and economic ramifications of such competition in various dockets including the Joint Board*

proceeding (Docket 19528 and Docket 20003). We have no plans for introducing competition in the provision of traditional public switched message telephone service.[1]

Except perhaps for the Commission's recent ruling in the Execunet case[2] the last paragraph of this statement is not an accurate description of the effects of the Commission's present policies, as has been pointed out at pp. 23-24 supra. The line between private line and public switched message telephone service is thoroughly blurred.

But what is "conventional" or "traditional" telephone service? Surely private line service, private branch exchanges, telephones in cars, trucks and taxicabs, and telephonic access to data systems have all been among the services the established general-service telephone companies have conventionally offered, or could readily arrange to offer. And why should the nation confine a developing system, whose capabilities and versatility are constantly and rapidly expanding, to the services it happened to provide at an earlier stage of its technological evolution? No ground of law or policy could justify arresting the development of the network at a given point, and denying the nation the advantages of its future improvement.

Defining the scope of the network has another dimension — that of vertical integration. Some economists treat the switched network as if it consisted of nothing more than the transmission and switching facilities of the Bell System and the Independent Telephone Companies. Such a definition is sterile, unrealistic, and inadequate. In a technological field where extremely rapid change has been the rule, the task of planning, managing, improving, and maintaining the network is a process calling for the continuous collaboration of research, manufacturing and operations personnel. The switched network is always being transformed. New products come into it at an astonishing rate (see pp. 17-20, supra). The switched network is, therefore, more than the transmission and switching equipment which performs the ultimate telecommunications services at any moment of time. It is also the array of research, manufacturing, operations, and management resources available to sustain and improve the network. They, too, are part of the network. It is a unified system, constantly growing in scale and complexity, which in the nature of things must be managed as a unit, through a process which requires the systems managers to have immediately available all the skills relevant to the task.

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1. Hearings before a Subcommittee of the Committee on Appropriations U.S. House of Representatives, 94th Congress, 1st Session, Part 6, (1975) at 382.

2. Discussed supra at p. 27-28

In short, the various attempts to isolate segments or sectors of the telecommunications business from the central concept of the network have proved to be illusory. The network is in fact indivisible. Experience now demonstrates that introducing the FCC policy of deliberately encouraging and protecting competitive entry into private line services, or into the provision of equipment to subscribers, inevitably has cumulative effects on the rate structure for all communications services, through the pressures it generates on price-averaging and on separations procedures.

I conclude that the only realistic definition of the scope of the integrated network, and therefore the only realistic definition for the scope of the Bell System and Independent Telephone Company franchises under the Communications Act, is the one offered in this memorandum: namely, that the basic task of the network, resting on complex and intricately reticulated systems of transmission, switching, and management, has been and is to provide the many kinds of communications services of which it is capable — not only public switched network services, but special private line voice and data services as well. Both public message and private line services use and depend upon the transmission or switching facilities of the network, or both, on its managerial procedures, and on its resources for research, development, planning, manufacture, and maintenance.

The intent of Congress in this area should be inferred not only from what it said and decided when it passed the 1921 and 1934 communications statutes, but from the consistent pattern of usage through which the Act was interpreted and applied before 1968. The essential principle of the Act is that the nationwide telephone network is and should remain a unified system, planned and managed by the Bell System in cooperation with the Independent Telephone Companies. This was the reality to which both statutes were addressed. It is the heart of the public interest standard embodied in the Act. The importance Congress attached to this central principle is highlighted by its reservation of jurisdiction in Section 215.

The principle of network unity requires the network to provide most, or nearly all, of the communications services, new and old, which can be handled conveniently and economically by its facilities. The strong presumption of policy should be that communications services are provided by the network and its constituent companies where that can be done effectively, at the lowest overall cost, and under conditions which optimize the use and improvement of the network. The reason for that conclusion is vividly demonstrated by the experience of the telecommunications industry since the decisions of the FCC in Carterfone, MCI, and Docket No. 18920.

Beyond that general rule, the principle of network unity suggests four conditions which should be met before the FCC

authorizes a specialized common carrier to offer such services. All four of these criteria are stated in the FCC's MCI decision, and in its later First Report and Order in Docket No. 18920, on Specialized Common Carrier Services:

> (1) that the services offered will in fact be novel, and will reach sectors of the market hitherto unserved or inadequately served;
>
> (2) that its equipment be compatible with that of the network, and minimize the risk of damage to its technical integrity or safety;
>
> (3) that the development of its services not adversely affect the economic viability of the network, or require significant changes in price averaging and separations procedures long supported by state and national policy; and
>
> (4) that the existing common carriers have full and normal economic freedom to respond to (or to anticipate) competition through price reductions, so long as their prices are not discriminatory or predatory. For reasons developed earlier in this paper, at pp. 12-13 and 38-41, this criterion of the MCI case and the Docket No. 18920 Report should be interpreted to mean that no price be deemed predatory if it covers the actual marginal or incremental cost of providing the service in question.

Until the FCC returns to these rules, the Bell System and the Independent Telephone Companies are in an unfair and untenable position. They are in the posture of Gulliver among the Lilliputians. Some of their most profitable business is being taken from them, and they are not allowed to respond. This is an absurdity which would give the nation the worst of both worlds. It is not a policy of competition, but of its opposite — market-sharing, restrictive rules, cartellization, and mercantilism.

Even if the existing telephone companies were allowed a full and fair opportunity to compete with the specialized private line telephone companies, the process of rate changes initiated by the FCC's decisions on this subject raises fundamental questions of policy.

Does Congress wish to allow the FCC to move away from value-of-service pricing, based on the economic principle of welfare maximization, and force the telephone companies to move towards cost-oriented pricing for services subject to competition — a trend which would reduce the share of common costs now borne by intercity rates, and thus require sharp increases in the telephone rates of households, in order to provide an adequate overall rate of return? Commissioner Wiley recently testified as follows on this phase of the Commission's present policy:

> *What we have attempted to do in our policies in common carriers is to direct Bell System and other telephone*

companies to price their services more along the cost that requires them to produce.[1]

Does Congress wish the FCC to pursue a policy of encouraging much more competition in the provision of telecommunications equipment for subscribers, at the cost of weakening the network managers' control of its technical quality?

Does Congress wish the FCC to take over, by preemption, an important part of the existing jurisdiction of the state regulatory commissions?

One thing is certain: the nation cannot have it both ways. It is impossible to preserve relatively low rates for the household subscriber, based on value-of-service pricing, nationwide averaging, and existing separations procedures, and at the same time to pursue the goal of encouraging the entry of new specialized telecommunications companies providing telephone service and supplying equipment, and then protecting them against competition.

Congress must choose, before the course of events makes it too late to choose.

An amendment of the Communications Act would be the soundest and most effective way to deal with the policy consequences of the FCC's recent decisions. I suggested such an approach in the course of my testimony before Senator Hart's Antitrust and Monopoly Subcommittee in 1974.

The essential objective of such an Amendment would be to reaffirm the intent of Congress, expressed in its 1921 and 1934 legislation, and in the unbroken pattern of practice before 1968, and apply that policy goal to the problems which have emerged in recent years. The amendment would thus give indispensable guidance to the FCC and the courts in directing the future evolution of the nation's integrated telephone network.

The condition of the industry, and the accelerating momentum of the trends initiated by recent FCC decisions discussed in this paper, urgently require a serious and responsible national debate on these subjects before Congress and the country. Only out of such a debate can we expect to achieve a renewal of national policy dominated by the national public interest.

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1. Hearings before a Subcommittee of the Committee on Appropriations U.S. House of Representatives, 94th Congress, 1st Session, Part 6 (1975) p. 369.